

REMARKS

In the present application, claims 1-12 are pending. Claims 1-12 are rejected. Claims 2 and 5 are cancelled. Claims 1, 3, 4, 6, 7, 8, 9, 10 and 11 are amended. No new matter has been added. Claims 1, 3, 4 and 6-12 are believed to be in condition for allowance.

The Amendments

Various elements of claims 2 and 5 have been incorporated into claim 1 as amended. As a result, claims 2 and 5 have been cancelled. In addition, various clarifying amendments have been made to claims 3, 4, 6, 7, 8, 9, 10 and 11. No new matter has been added.

Claim Objections

The Examiner objected to claim 6 because of a formality and required appropriate correction. Claim 6 has been amended in accordance with the Examiner's request and is in condition for allowance.

Claim Rejections – 35 USC § 102(b)

The Examiner rejected claims 1 and 3-12 as being anticipated by Tsubaki et al. (6,300,909), hereinafter "Tsubaki". With respect to claims 1 and 12, the Examiner asserted that Tsubaki disclose "an antenna arrangement in Fig. 6 including: - an antenna element (32); a load element (37) capacitively coupled to the antenna element (32)(Fig. 6); and – a frequency adjusting arrangement for tuning the antenna element (Fig. 6), wherein the frequency adjusting arrangement comprises a switch (38) arranged to connect one of one or more strip lines to the load element (Fig. 6).

Applicants respectfully assert that Tsubaki does not recite the elements of claim 1 as amended herein.

Claim 1 recites:

1. An antenna arrangement comprising:
an antenna element;
a frequency adjusting arrangement for tuning said antenna element, wherein said frequency adjusting arrangement comprises:
a load element capacitively coupled to said antenna element;

at least two lines, each of said at least two lines comprising one of a strip line and a microstrip line; and
a switch, the switch having at least two throws, each throw of said switch being connected to a different one of said at least two lines, the switch being arranged to connect one of said at least two lines to said load element.

Tsubaki teaches, generally, a tunable antenna wherein frequency adjustment is affected through control of a switch 38. Tsubaki further discloses, generally, that a broad band of frequencies can be obtained by connecting plural control electrodes and switch electrodes and by turning the switches on and off.

Applicants respectfully assert that Tsubaki fails to teach a switch arranged to connect one of the at least two lines to the load element as claimed. In addition, Tsubaki fails to teach a switch, having at least two throws, each throw being connected to a different one of the strip or microstrip lines.

As is evident from Fig. 6 of Tsubaki, and the accompanying explanatory text at col. 5, line 35 – col. 6, line 19, Tsubaki teaches connecting control electrodes to ground potential via simple wires. In contrast, claim 1 recites that the load element is connected, via the switch, to strip or microstrip lines. As is discussed more fully below, a wire is not equivalent to a strip line or a microstrip line. Tsubaki therefore fails to teach this element of claim 1.

Tsubaki further teaches a plurality of single throw switches wherein each switch is connected to a different control electrode and wherein the switch does not have multiple throws. In contrast claim 1 recites a switch having at least two throws, each throw being connected to a different one of the strip or microstrip lines. Applicants allow that Tsubaki does teach a single switch configuration but, in such instance, does not teach that the switch has more than one throw. Furthermore, Applicants are in agreement with the Examiner when the Examiner states that Tsubaki does not disclose that “the switch is a multiple throw switch.” Tsubaki therefore fails to teach this element of claim 1. For the reasons discussed above, claim 1 is in condition for allowance. As all of claims 3-12 depend upon claim 1, they are likewise in condition for allowance.

Claim Rejections – 35 USC § 103(a)

The Examiner rejected claim 2 as being unpatentable over Tsubaki in view of Sjogren (5,917,385). As claim 2 has been cancelled, this rejection is moot. However, because, as noted above, the elements of claim 2 have been added to claim 1 as amended herein, Applicants wish to address the propriety of combining the teachings of Tsubaki and Sjogren, such a combination neither suggested nor deemed appropriate.

The Examiner asserted that “Sjogren disclose antenna control circuit in Fig. 5 comprising a switch (54) is a multiple throw switch (See Sjogren, Col. 5, Line 54); thus, it would have been obvious having ordinary skill in the art to modify Tsubaki et al in the manner described above for adjusting the RF signal line and for tuning the reactance antenna elements (See Sjogren. Abstract).”

Applicants respectfully assert that, in fact, Tsubaki teaches away from a combination with the teachings of Sjogren and, were such teachings to be combined, such a combination neither suggested nor deemed appropriate, would still fail teach the elements of claim 1.

First, Tsubaki teaches a single wire connecting the control electrode to ground potential via a single switch. The wire is short circuited to change the frequency of the antenna. Because a single wire does not exhibit complex impedance, there is no advantage to connecting multiple wires to the switch of Tsubaki. Therefore, Tsubaki teaches, at the Examiner’s citation to col. 6, utilizing a plurality of switches, each connected to ground by a single wire, in order “to realize a much broader band.” In contrast, strip lines and microstrip lines exhibit complex impedance. As a result, use of strip lines and microstrip lines make possible the tuning of an antenna without requiring a connection to ground potential for each of the strip or microstrip lines. Tsubaki therefore teaches away from a teaching of a switch having multiple throws as multiple connection to a grounding wire would not affect the operation of the antenna element of Tsubaki.

Furthermore, while Sjogren does teach at col. 5, line 54 a multiple throw switch, Sjogren does not teach or suggest the use of a multiple throw switch to achieve tuning of an antenna. In fact, neither Tsubaki nor Sjogren, taken alone or in combination, such a combination neither suggested nor deemed appropriate, teach or suggest using a multiple throw switch to achieve tuning of an antenna. Furthermore, were the teachings of Tsubaki

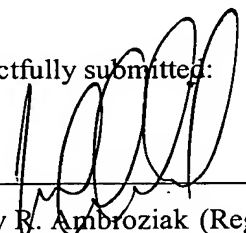
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and Sjogren to be combined, such a combination neither suggested nor deemed appropriate, the resulting combination would not teach the claimed strip or microstrip lines as claimed. For all of these reasons, claim 1 is additionally in condition for allowance.

An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

Respectfully submitted:



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